



Attorney Docket No.: 2003P01684WOUS

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michael Neumann et al  
Application Number: 10/578,787  
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Group Art Unit: 3744  
Examiner: Mohammad M. Ali  
Title: REFRIGERATION DEVICE WITH IMPROVED  
CONDENSED WATER ELIMINATION

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Commissioner for Patents

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**APPEAL BRIEF**

Pursuant to 37 CFR 1.192, Appellants hereby file an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 1 – 9 are cancelled. Claims 10-18 are pending in the present application and have been finally rejected. Claims 19 and 20 have been withdrawn from consideration. The final rejections of claims 10-18 are being appealed. Claim 10 is independent.

(4) STATUS OF AMENDMENTS

In response to the Final Rejection dated September 5, 2008, Appellants filed an Amendment After Final Rejection on December 19, 2008. The Amendment was not entered by the Examiner. Appellants filed a Notice of Appeal on January 26, 2009.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The invention relates to a refrigeration device equipped with means for evaporating condensed water accumulating in the device. The refrigeration device shown schematically in cross-section in Fig. 1 includes a heat-insulating housing having a casing 1 and a door 2 hinged thereon, enclosing an interior 3. An evaporator 5 is located on the back of the interior 3 which is subdivided into compartments by a plurality of shelves 4. A coolant circuit extends from a high-pressure output of the compressor 7 via a condenser 8 attached externally to the back of the casing 1 and the evaporator 5 to a suction connection of the compressor 7. See page 3, lines 18-27.

Air moisture from the interior 3 that condenses on its wall cooled by the evaporator 5

collects at the lower edge of the wall in a drainage channel 10. The moisture passes via a drain pipe 11 through the heat-insulating material 6 to an evaporation tray 12 that is mounted on the compressor 7 to be heated by its waste heat. See page 3, lines 29-32.

A suction connecting pipe 13 of a pump vaporizer 14 extends into the evaporation tray 12. The vaporizer 14 produces a fine mist which droplets rapidly evaporate as a result of their small size. The air moisture is flushed away by an air flow via a flue into open air. See page 4, lines 1-9.

Fig. 2 shows an exemplary pump vaporizer 14. The suction connecting pipe 13 opens into a pump chamber 16 in which a piston 17 can move forward and back. When the piston 17 is at rest, a check valve is closed, which is shown as a ball 18 held pressed against the valve seat 20 at the inlet of the pump chamber 16 via leaf spring 19. In the piston 17, a pipe 21 extends from the pump chamber 16 to a vaporizer chamber 22 in which the incoming condensed water is agitated before it passes into the open through a fine nozzle orifice and vaporizes to form a mist 23. That is, the vaporizer operates to produce droplets of water from the condensed water by a non-evaporation step in which the droplets of water are formed directly from the condensed water without any intermediate steps of evaporating the condensed water into a gas and thereafter condensing the gas to form droplets. See page 4, lines 11-19.

In the described structure, the droplets of water produced by the vaporizer are formed directly from the condensed water without any intermediate steps of evaporating the condensed water into a gas and thereafter condensing the gas to form droplets. See page 4, lines 11-19. The vaporizer is disposed above a collecting tray. See page 4, lines 1-9. An evaporator tray is connected to the collection device and is heated by a compressor. See page 3, lines 29-32. In one arrangement, the collecting tray and the evaporator tray form a single unit. See page 2, lines 19-20. The vaporizer includes a vaporizer nozzle and a pump for pressing the condensed water through the vaporizer nozzle. See page 4, lines 11-19. The pump preferably includes a linearly movable piston and a solenoid displaceable in a coil for

linearly driving the piston. See page 4, lines 21-31. The pump is driven by at least one of opening and closing a door of the refrigeration device. See page 5, lines 17-20.

The vaporizer may be formed by a high-frequency oscillator. See page 2, lines 31-33 and Fig. 3.

The refrigeration device may additionally include a sensor for detecting a collected quantity of the condensed water and a control device for operating the vaporizer when the collective quantity of the condensed water detected exceeds a predetermined limiting value. See page 5, line 22 through page 6, line 20.

Specific Support for Independent Claim 10

A refrigeration device, comprising:

a collection device for condensed water, and [page 3, lines 29-32]

a vaporizer for said condensed water connected to said collection device [page 4, lines 1-9], said vaporizer operating to produce droplets of water from said condensed water by a non-evaporation step in which said droplets of water are formed directly from said condensed water without any intermediate steps of evaporating said condensed water into a gas and thereafter condensing the gas to form droplets. [page 4, lines 11-19]

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A) Whether claims 10-14 are unpatentable under 35 U.S.C. §103(a) over U.S. Published Patent Application No. 2002/0062654 to Navarro in view of U.S. Patent No. 5,219,383 to Minari et al.

B) Whether claims 10, 17 and 18 are unpatentable under 35 U.S.C. §103(a) over Japanese Patent Publication 2003-202179 to Masashi in view of Minari.

C) Whether claim 12 is unpatentable under 35 U.S.C. §103(a) over Navarro or Masashi in view of Minari.

D) Whether claim 15 is unpatentable under 35 U.S.C. §103(a) over Navarro in view of Minari U.S. Patent No. 4,477,166 to Funk and U.S. Patent No.

2,222,823 to Parenti.

E) Whether claim 16 is unpatentable under 35 U.S.C. §103(a) over Navarro in view of Minari and Japanese Patent Publication 2002-295968 to Shiraishi.

(7) ARGUMENT

A) Claims 10-14 are patentable under 35 U.S.C. §103(a) over U.S. Published Patent Application No. 2002/0062654 to Navarro in view of U.S. Patent No. 5,219,383 to Minari et al.

Independent claim 1 defines a refrigeration device including a collection device for condensed water, and a vaporizer for the condensed water connected to the collection device. The vaporizer operates to produce droplets of water from the condensed water by a non-evaporation step in which the droplets of water are formed directly from the condensed water without any intermediate steps of evaporating the condensed water into a gas and thereafter condensing the gas to form droplets.

Navarro is directed to an air curtain for an open front refrigerated showcase that contains food items (see the Abstract). A dissipater pan 13, as seen in Fig. 1, is provided to accumulate water. The dissipater pan 13 holds a copper precondenser coil 12 with a major portion of the precondenser coil 12 exposed to the atmosphere. The water evaporates into the atmosphere from the dissipater pan 13 (see paragraph 0039). As seen in Fig. 1, forward of the filter 11, the top of the refrigerated showcase is exposed to the atmosphere by the open mesh grid cover 2 to facilitate the evaporation of the water warmed by the heat absorbed from the precondenser coil 12 in the pan 13 (see paragraph 0045). Therefore, according to Navarro, water in the pan is warmed and thereby evaporated into the atmosphere in a shorter time period than had the water not been warmed.

Minari discloses an ice making machine including a cooling vessel arranged to store an amount of liquid cooling medium and an amount of separation medium located about the cooling medium (see the Abstract). Minari has a single Figure and with reference thereto, the

internal cylindrical housing 11 is configured for storage of an amount of liquid cooling medium 15 and an amount of separation medium 16. In the first embodiment, mercury is used as the cooling medium 15 and a hydrophobic liquid such as castor oil is used as the separation medium 16. The hydrophobic liquid is located above the mercury layer 15 due to the difference in specific gravity (col. 2, lines 41-52). In operation, both mediums 15, 16 in the internal cylindrical housing 11 of the cooling vessel 10 are maintained at about -15°C, and the hydrophobic liquid 16 is circulated under operation of a pump (col. 3, lines 4-7).

A water supply system 22 including a water tank 21 is provided with a water supply conduit 22 and a nozzle 23. The water tank 21 stores a predetermined amount of fresh water, which is injected into the internal cylindrical housing 11 of the cooling vessel 10. The fresh water from tank 21 is supplied as water drops under the mercury layer in housing 11 by means of the nozzle 23 (col. 2, lines 53-62). In operation, fresh water from the water supply system 20 is supplied as water drops 17a into the mercury layer 15 through the nozzle 23. The water drops 17a are formed into ice balls 17b while rising through the mercury layer 15. The formed ice balls 17B are then separated from the mercury layer 15 and the hydrophobic liquid 16 to be floated on the surface of the hydrophobic liquid 16 which, by means of its flow, provides the ice balls to a conveyor 34 to be harvested (col. 3, lines 10-21). Unlike the claimed invention, the nozzle of Minari provides a stream of discreet water drops into a medium operating at -15°C for freezing of the water droplets individually into individualized ice balls.

In substantial contrast, the misting apparatus or vaporizer of the claimed invention provides a mist or fog-like droplet cloud into atmospheric air for dispersion in the air to facilitate the evaporation process. The result is air with an increased moisture content. Since both Navarro and Minari lack at least the claimed vaporizer that is operable to produce droplets of water from condensed water by a non-evaporation step in which the droplets of water are formed directly from the condensed water without any intermediate steps of evaporating the condensed water into a gas and thereafter condensing the gas to form droplets,

Appellant submits that the combination of Navarro and Minari would not result in the claimed invention.

Further, aside from a collection tray, neither of Navarro or Minari (or the additional cited references) discloses the structure of the claimed vaporizer or misting apparatus.

For these and other reasons, Navarro and Minari, either alone or in combination, do not teach or suggest the subject matter defined by independent claim 10. Therefore, Appellant submits that claim 10 is allowable. Claims 11-14 depend from claim 10, and Appellant submits that these claims are allowable for the same reasons and also because they recite additional patentable subject matter.

B) Claims 10, 17 and 18 are patentable under 35 U.S.C. §103(a) over Japanese Patent Publication 2003-202179 to Masashi in view of Minari.

Masashi discloses an apparatus to drain water generated from a cooler of a freezing and refrigeration device. Atomized water is blown out before the radiator of the freezing and refrigeration device to cool the radiator and evaporate atomized water with heat thereof for completing evaporation. Since blowing out atomized water causes recondensation, leaks and contamination by underwater bacteria, the storage tank and an atomization tank are separated in conditions to avoid reproduction of underwater bacteria as much as possible and to perform efficient atomization. Atomized water is supplied when the radiator is under a high temperature condition.

For these and other reasons, Masashi and Minari, either alone or in combination, do not teach or suggest the subject matter defined by independent claim 10. Therefore, Appellant submits that claim 10 is allowable. Claims 17 and 18 depend from claim 10 and are allowable for the same reasons and also because they recite additional patentable subject matter.

C) Claim 12 is patentable under 35 U.S.C. §103(a) over Navarro or Masashi in view of Minari.



Appellant submits that the Minari patent similarly does not correct the deficiencies noted with regard to Navarro and Masashi. As such, Appellant submits that claim 12 is allowable by virtue of its dependency on an allowable independent claim.

D) Claim 15 is patentable under 35 U.S.C. §103(a) over Navarro in view of Minari, U.S. Patent No. 4,477,166 to Funk, and U.S. Patent No. 2,222,823 to Parenti.

None of the other cited references (Funk, Parenti, etc.) make up the deficiencies of Navarro and Minari, and therefore, even though such references are used to reject dependent claim 15, none of the structure therein will combine with Navarro and Minari to achieve the present invention as defined claim 15. Reversal of the rejection is requested.

E) Claim 16 is patentable under 35 U.S.C. §103(a) over Navarro in view of Minari and Japanese Patent Publication 2002-295968 to Shiraishi.

Appellant submits that the Shiraishi publication similarly does not correct the deficiencies noted with regard to Navarro and Minari. As such, Appellant submits that claim 16 is also allowable by virtue of its dependency on an allowable independent claim

(8) CONCLUSION

In view of the foregoing discussion, Appellants respectfully request reversal of the Examiner's rejections.

Respectfully submitted,



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CLAIMS APPENDIX

1 – 9 Cancelled

10. (Rejected) A refrigeration device, comprising:

a collection device for condensed water, and

a vaporiser for said condensed water connected to said collection device, said vaporizer operating to produce droplets of water from said condensed water by a non-evaporation step in which said droplets of water are formed directly from said condensed water without any intermediate steps of evaporating said condensed water into a gas and thereafter condensing the gas to form droplets.

11. (Rejected) The refrigeration device according to claim 10, including said vaporiser disposed above a collecting tray.

12. (Rejected) The refrigeration device according to claim 10, including an evaporator tray connected to said collection device, said evaporator tray heated by a compressor.

13. (Rejected) The refrigeration device according to claim 11, including said collecting tray and said evaporator tray form a single unit.

14. (Rejected) The refrigeration device according to claim 10, including said vaporiser having a vaporiser nozzle and a pump for pressing said condensed water through said vaporiser nozzle.

15. (Rejected) The refrigeration device according to claim 14, including said pump having a linearly movable piston and a solenoid displaceable in a coil for linearly driving said piston.

16. (Rejected) The refrigeration device according to claim 14 including said pump is driven by at least one of opening and closing a door of the refrigeration device.

17. (Rejected) The refrigeration device according to claim 10, including said vaporizer formed by a high-frequency oscillator.

18. (Rejected) The refrigeration device according to claim 10, including a sensor for detecting a collected quantity of said condensed water and a control device for operating said vaporizer when said collected quantity of said condensed water detected exceeds a predetermined limiting value.

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EVIDENCE APPENDIX

None

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RELATED APPEALS APPENDIX

None